COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

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| A JOINT APPLICATION FOR THE APPROVAL OF DEMAND-SIDE MANAGEMENT PROGRAMS, A DSM COST RECOVERY MECHANISM, AND A CONTINUING COLLABORATIVE PROCESS ON DSM FOR LOUISVILLE GAS AND ELECTRIC COMPANY | ) ) ) ) ) | CASE NO. 93-150 |

O R D E R

IT IS ORDERED that Louisville Gas and Electric Company ("LG&E"), the Attorney General, Jefferson County, Metro Human Needs Alliance, People Organized and Working for Energy Reform, Anna Shed, Kentucky Industrial Utility Customers, Louisville Resources Conservation Council, and the Louisville and Jefferson County Community Action Agency (collectively, "Joint Applicants") shall file on or before September 29, 1993, the original and 15 copies of the following information with the Commission, with a copy to all parties of record. Each copy of the data requested should be placed in a bound volume with each item tabbed. When a number of sheets are required for an item, each sheet should be appropriately indexed, for example, Item 1(a), Sheet 2 of 6. Include with each response the name of the witness who will be responsible for responding to questions relating to the information provided. Careful attention should be given to copied material to ensure that it is legible. If any information requested herein has been previously placed in the record, reference may be made to the specific location of said information in responding to this information request.

1. Specify whether the monthly and annual financial information filed with the Commission by LG&E is for LG&E's Kentucky jurisdictional utility system or for LG&E's holding company, LG&E Energy, as a whole. Explain.

2. Update the exhibits shown on pages 1-4 of Attachment 3 of the Joint Application filed on April 21, 1993 ("Joint Application") for the twelve months ending June 30, 1993. Fully explain all assumptions made in updating these exhibits.

3. Provide the following customer information for the twelve month period ending June 30, 1993. The information should be provided for both electric and gas operations.

a. The number of customers at the end of each month of the period.

b. The average number of customers for each month of the period.

4. Identify utilities that have implemented a decoupling mechanism outside of a general rate case. Specify for each the length of time between a general rate case and the subsequent implementation of the decoupling mechanism.

5. Explain why the Joint Applicants believe it is reasonable to use a revenue requirements determination that is over three years old as the basis for a residential decoupling mechanism.

6. For each of the three years of the proposed demand-side management ("DSM") experiment, provide the estimated Kwh, KW and Mcf savings or reductions expected by the Joint Applicants for each of the three proposed DSM programs. Explain in detail how these

estimated savings or reductions were determined, including all supporting workpapers, calculations, and assumptions.

7. Provide a thorough explanation of how the collaborative intends to monitor and evaluate the success of the DSM programs implemented during the experimental period. Include a discussion of the goals that have been set currently for the initial DSM programs.

8. Refer to Exhibit 3 of Mr. Blake's testimony filed on July 30, 1993.

a. This exhibit presents an analysis of the growth rates of electric residential Kwh sales, residential customers, and residential usage per customer. Provide the same analysis, for the same periods shown, for LG&E's residential gas customers.

b. Since the Joint Applicants have not agreed to a methodology for determining the growth factor, explain why the log-linear regression model is being used. Is collaborative approval required for the method of calculating the usage per customer growth rate?

c. Explain why a log-linear regression model is the most appropriate model to derive a usage per customer growth rate. In the explanation, describe why this particular model is expected to result in more accurate usage forecasts than other methods.

d. Calculate a compound annual growth rate for residential usage per customer for the period 1983-1992 using beginning and ending points. Explain why this is not an appropriate growth rate to use in the decoupling mechanism.

e. Explain how the proposed electric and gas usage per customer growth rates compare to long run consumption growth trends and why the use of long run trends is not appropriate for use in the decoupling mechanism.

9. Provide the following information concerning the collaborative process:

a. Describe the research the Joint Applicants performed concerning the use of a collaborative process. If applicable, identify other collaboratives on which the process used by the Joint Applicants is based.

b. Identify each member of the collaborative and the respective representative, as of the date of the response to this Order. Specify what customer group or interest each collaborative member represents.

c. According to Mr. Blake's testimony, additional members can be added to the collaborative by the unanimous consent of the existing members. Explain why this condition is necessary and reasonable. Also, explain why other federal, state, or local governmental entities in the LG&E service territory wishing to join the collaborative would have to be subject to the collaborative's unanimous consent provision.

d. Based on Mr. Blake's testimony, all collaborative decisions must be unanimous. Indicate whether individual members of the collaborative are required to explain why they oppose a particular action. If such an explanation is not required, explain why.

e. Explain how the collaborative process protects ratepayer interests if all rate classes and customer groups are not equally represented on the collaborative.

f. What safeguards will be in place to ensure that no collaborative member arbitrarily objects to and blocks the implementation of new DSM programs?

g. Will Commission Staff be allowed to attend and speak at meetings of the collaborative or its subgroups? Explain.

h. Can any present or future members of the collaborative be a contractor in any of the programs proposed? Explain.

i. Provide a copy of the bylaws of the collaborative.

10. With regard to the DSM collaboratives which the Joint Applicants state have been used in 10 states involving approximately 24 utilities, in how many of these DSM collaboratives were the costs of the consultants and employees of the collaborative paid by the utility and later recovered through the DSM recovery mechanism?

11. Indicate which of the collaborative members are public agencies. Explain why costs incurred by an employee of a public agency should be recovered through utility rates absent specific legislative authority.

12. Explain how and why the collaborative chose the three DSM programs that are being proposed in this filing. If other programs were considered, list them along with reasons they were not chosen. If no other programs were considered, explain why.

13. In LG&E's integrated resource planning process, prospective DSM programs are subjected to qualitative and quantitative screening using cost-effectiveness tests and other criteria. The DSM programs passing these tests are then integrated with cost-effective supply-side resource options in order to determine LG&E's lowest cost and reasonable long-range resource plan.

a. Explain how the integrity of LG&E's integrated resource planning process will be protected from a collaborative process in which any member can oppose and block any DSM program, even those that are cost-effective.

b. Explain how prospective DSM programs will be screened for cost-effectiveness by the collaborative or its subgroups.

14. The residential decoupling mechanism proposed is a per customer decoupling mechanism with a two-part growth factor. Provide the following information:

a. Identify the utilities and the applicable regulatory commissions where a per customer decoupling mechanism with such a two-part growth factor is utilized. Indicate how long this particular mechanism has been in effect for each utility.

b. The proposed decoupling mechanism includes a two-part growth factor, which reflects changes in the number of customers and changes in usage (electric only). If the decoupling of rates is supposed to separate revenues from sales, explain in

detail why the proposed decoupling mechanism includes a component which recognizes increases in electric usage.

c. Explain why the proposed residential decoupling mechanism reflects customer growth through a proportional approach, rather than determining the non-variable revenue requirement per customer as of the last general rate case and applying that amount to the number of customers at the end of each year of the experimental period.

d. Why hasn't LG&E proposed decoupling revenue from sales for non-residential customer classes?

15. Concerning the proposed shareholder incentive, explain in detail why the incentive rate should be higher than the rate of return on common equity granted in LG&E's last general rate case.

16. Explain fully whether any shareholder incentive should be contingent upon LG&E meeting specific pre-determined levels of net benefits attributable to DSM programs.

17. The experimental energy conservation rate has several restrictions on its availability as shown on proposed Tariff Sheet No. 2-A.

a. Explain in detail the reasons for restricting the rate to recipients of benefits under the Low Income Home Energy Assistance Program ("LIHEAP").

b. Given the design and intent of the proposed decoupling mechanism, explain why the experimental rate is not being made available to all residential customers.

c. Explain in detail the reasons for restricting the rate to customers that receive both gas and electric service.

d. Explain the reasons for the 14,000 KWH annual usage restriction and explain the selection of 14,000 KWH as the cut-off level.

18. Attachment 4 of the Joint Application shows the calculation of the experimental energy conservation rate ("EEC Rate") and the testimony of LG&E indicates that, based on the billing determinants used in Case No. 90-158, the proposed energy charges would recover the same revenue requirements for Residential Rate R as approved in the rate case, if they were applied to all residential customers.

a. Based on the Case No. 90-158 billing determinants (assuming, for simplicity, that the average number of customers of 284,004 was the actual number of customers for each month of the test period), average monthly usage for all residential customers was 723 KWH and 1,069 KWH, respectively, during the winter and summer seasons. In designing the EEC Rate, identify and describe the assumptions, if any, that were made regarding the average usage of the LIHEAP customers eligible for the EEC Rate.

b. Based on the proposed energy charges, a customer would be billed less under the experimental rate than under the standard rate when the customer's winter usage is 919 KWH or less and summer usage is 1,210 KWH or less. Explain in detail why the energy charges were designed so that customers using as much as 13

to 27 percent more than the average residential usage could benefit under the experimental rate.

c. The proposed experimental rate maintains the blocks in LG&E's existing rates with the second block energy charge equal to 150 percent of the first block energy charge. Explain in detail the rationale for this specific rate design.

d. The energy charges in the experimental rate, if applied to all residential customers, would recover the same revenue requirements as approved in Case No. 90-158 for Residential Rate R based on the billing determinants used in that case. Given the structure and purpose of the proposed decoupling mechanism, explain why recovery of the same revenue requirement as approved for Residential Rate R is relevant.

19. For Residential Rate R, the revenues lost due to DSM are proposed to be recovered through a decoupling mechanism shown in proposed Tariff Sheet No. 23-C. The mechanism would provide for recovery of the difference between the actual non-variable revenue billed during the 12-month period and the adjusted non-variable revenue requirement computed pursuant to the formula included in the tariff.

a. The non-variable revenue requirement is based on Case No. 90-158 in which rates became effective January 1, 1991. Provide an analysis, with all pertinent workpapers and narrative explanations, which shows the results that would have been produced for calendar years 1991 and 1992 if the decoupling mechanisms had been effective since January 1, 1991.

b. In Case No. 90-158 gas sales were weather-normalized but electric sales were not. The test year for that case was the 12 months ended April 30, 1990. Provide an analysis, with all necessary workpapers and narrative explanations, which shows (1) heating and cooling degree days for the test period in Case No. 90-158, (2) normal heating and cooling degree days as most recently established by the National Oceanic and Atmospheric Administration, and (3) the impact that an adjustment for normal weather would have had on residential electric sales for the test period.

20. The formula in proposed Tariff Sheet No. 23-C for calculating the adjusted non-variable revenue requirement includes a growth factor of 1.31 percent to reflect growth in electric usage per customer. Mr. Blake's testimony at page 18 explains the derivation of the proposed growth factor.

a. Explain why 10 years is the appropriate period for calculating the proposed growth factor.

b. The KWH sales used to calculate the growth factor were not weather-normalized. Explain why sales were not weather-normalized and provide an analysis which shows the impact of weather normalization on the calculated growth factor.

21. Refer to Exhibit CE of the Joint Application.

a. Does the analysis presented in Exhibits CE-1 through CE-6 represent only the results for the first year of the DSM program? If so, provide a similar analysis encompassing all three years of the proposed experiment.

b. Explain how LG&E's general body of ratepayers benefits from gas commodity and electric production cost savings resulting from the proposed DSM programs.

c. Provide a narrative explanation, with all necessary workpapers, which shows Mr. Lay's derivation of the gas usage of program participants prior to receiving weatherization services as discussed in Note 10 on page 7 of Exhibit CE-1.

d. Provide an explanation, with all necessary workpapers, which shows Mr. Lay's determination of lifetime benefits from insulation as discussed in Note 3 on page 7 of Exhibit CE-1.

e. Provide a narrative explanation, with all necessary workpapers, which shows Mr. Lay's derivation of the participant reduction in space heating gas commodity sales as discussed in Note 16 on page 8 of Exhibit CE-1.

f. Explain in detail how the members of the collaborative determined that the participant reduction in space heating gas demand is 10 percent as discussed in Note 18 on page 8 of Exhibit CE-1. Provide all supporting calculations and workpapers.

g. Refer to Note 23 on page 9 of Exhibit CE-1. Provide a more complete description of the referenced EPRI-developed software. For example, from the description, the software appears to be used for system planning. If this is the case, cost savings outputs would be expected, but it would appear that electric peak

load reduction would be an input, not an output as indicated. Explain how peak load reductions were calculated.

h. Explain whether avoided capacity costs referred to in Note 23 on page 9 of Exhibit CE-1 are based on embedded costs or the costs for new generating capacity.

i. Describe completely the derivation of the items in column 2 (DRI Gas Demand Escalator) through column 11 (Electric Generation Capacity Savings) of the exhibit on page 5 of Exhibit CE-1. Provide all assumptions, calculations, and workpapers for each derivation.

j. For each column in the exhibit on page 5 of Exhibit CE-1 designated as a "Savings," identify which savings will accrue to all ratepayers who will be assessed program costs, as opposed to only program participants, and describe how these ratepayers will receive these savings.

k. Prepare an exhibit similar to the one on page 5 of Exhibit CE-1 in which any cost savings which are available only to program participants have been omitted. Use the results to obtain a net present value analysis similar to the net present value analysis shown on page 6 of Exhibit CE-1.

22. Exhibit CE-1 reflects estimated program benefits for the conservation and education program having a present value of $1,350,863. However, the joint application contains no determination of program benefits resulting from the experimental energy conservation rate. Explain in detail why there is no

estimate of program benefits in the form of electric production cost savings or generation capacity savings.

23. The cost for the DSM programs as proposed by the Joint Applicants will be assessed to most retail customers of LG&E, with some exceptions. Explain why any of LG&E's ratepayers should be required to pay for DSM programs even if they do not directly benefit from the programs.

24. Refer to page 5 of the Joint Application. Section 10, Program and administrative costs, discusses the recovery of the collaborative's program and administrative expenses, including the costs of consultants and employees of the collaborative.

a. Provide a description of the transactions which will be involved in this process. For example, will other members of the collaborative submit bills to LG&E, which LG&E would pay and then later recover these costs from LG&E's ratepayers through the DSM recovery mechanism?

b. What is meant by "employees of the collaborative"? Does this refer to employees of the members of the colloborative, or is it anticipated that employees will be directly hired by the collaborative? What is the current number of full and part-time collaborative employees, and what do you anticipate that number will be one, two and three years from now?

c. Provide an explanation of how the collaborative's program and administrative expenses will be controlled and overseen. Specify whether there will be any oversight by the

entire collaborative over the billed expenses of individual members.

d. Identify the expected expenses which will be incurred by the collaborative over the life of the experiment, broken down by collaborative member. Are these amounts included in the $906,385 annual program costs identified in Exhibit AE-1?

e. Provide the annual budgets of the collaborative for each year of the three year experiment.

f. Explain how the collaborative's budget has been financed to date.

g. Explain why administrative expenses incurred by collaborative members, other than LG&E, should be charged to LG&E's ratepayers.

h. If the collaborative had not been able to reach a consensus and the Joint Application had not been filed with the Commission, would LG&E have reimbursed the other collaborative members for expenses incurred during negotiations? Explain.

i. Has the collaborative incurred any program and administrative costs to date that will be reimbursed by LG&E's ratepayers if the DSM tariffs are approved?

25. In the absence of any DSM programs, when does LG&E plan to add generating capacity?

a. Identify estimated costs and additional power which would be available from the next capacity addition.

b. Provide an analysis showing the amounts which would be required to be spent on the DSM programs proposed in the Joint

Application in order to delay the next capacity addition for one year; 5 years; and indefinite postponement. The analysis should take the form of an engineering economic study which views the DSM option and supply side option as mutually exclusive alternatives. If necessary for simplicity, ignore the possibility that additional capacity may be required beyond the next planned addition.

c. Provide an analysis similar to (b), above, but assume that more efficient DSM programs would be implemented. Identify and support all assumptions.

26. Refer to page 9 of the Joint Application. Section 14, Shareholder incentive, describes the proposed shareholder incentive as 15% of net resource savings, which are defined as program benefits less utility program costs. It is further stated that, "This amount is designed to give LG&E and its shareholders a positive incentive to pursue DSM programs."

a. Considering that investments in supply-side options are only explicitly recognized for ratemaking purposes in rate proceedings, whereas the proposed DSM cost recovery mechanisms would be adjusted annually, and assuming that rate cases occur much less frequently than annually, explain why the proposed annual DSM rate adjustments do not provide an incentive in favor of DSM investments over supply-side options.

b. Considering that "program benefits" may be difficult or contentious to quantify, why is this type of shareholder incentive preferable to a ratebasing approach in which DSM

investments would be amortized over their useful life with an opportunity to earn a return on the unamortized investments?

27. Refer to page 25 of Mr. Blake's testimony. The proposed energy conservation rider to Rate R includes a new inverted block rate structure for both the winter and summer seasons. Mr. Blake states: "Although in LG&E's view, this rate schedule should not be extended to the entire residential customer class, the summer and winter inclining block rate may encourage conservation for LIHEAP recipients who often have limited resources for meeting their energy needs." Discuss the pros and cons of this rate structure as an energy conservation measure assuming that it is an option for the entire residential class and the Commission approves decoupling.

28. Much of the rationale for DSM special incentives appears to be that energy conservation measures are contrary to a utility's basic business interest of encouraging sales of its product. How applicable is this rationale if the DSM program takes the form of peak shifting without attempting to reduce overall energy usage? For example, time-of-day pricing and air conditioning cycling could be examples of DSM programs which could soften peaks without significantly reducing overall energy usage.

29. The proposed shareholder incentive is based upon the difference between program benefits and utility program costs. If the cost of fuel savings is considered a program benefit for which a shareholder incentive is provided, to what extent would this

encourage DSM programs that resulted in conserved energy compared to those which only "conserved" capacity?

30. Refer to page 11 of Mr. Blake's testimony. Describe the process, as envisioned by the Joint Applicants, by which the Commission will annually review the DSM programs and costs. Specify whether the Commission or the collaborative should define this annual review process.

31. For each collaborative member, other than LG&E, explain whether or not any of the proposed DSM programs duplicates or continues any programs which would normally be carried out by the member or its constituents.

32. Refer to page 9 of the Joint Application and proposed electric tariff Sheet No. 23-D and gas tariff Sheet No. 11-A. For the non-residential, non-industrial electric and the gas rate classes, decreased sales of electricity and gas due to approved programs are to be based upon estimates agreed upon by the collaborative process, which may include engineering estimates.

a. If estimates of lost sales are not based upon engineering estimates, then explain all alternative methodologies which the collaborative intends to use to estimate lost sales.

b. Provide a discussion of what attempts will be made to verify actual reductions in Kwh energy sales, billing demand in killowatt-months and Mcf gas sales due to approved programs.

c. If no attempt is made to verify actual lost sales, explain how the true cost effectiveness of the programs can be verified and used as models for future and/or expanded programs.

d. In gas tariff Sheet No. 11-A, explain why Rate RGS is included in a sentence found in the second full paragraph that begins, "The lost revenues attributable to decreased sales under Residential Gas Service Rate RGS. . . ."

33. Refer to page 1 of Appendix 1 of Attachment 1 of the Joint Application filed on April 21, 1993. The Residential Conservation and Energy Education Progam is only open to low income residential customers.

a. Specify whether these DSM efforts will be limited to low income residents of Jefferson County or whether qualifying residential low income customers elsewhere in LG&E's service territory will be included?

b. If these programs are limited to Jefferson County, explain why residential customers not residing in Jefferson County should be required to pay for programs that will not target low income residents in their respective counties.

34. In Attachment 5 to the Joint Application in Exhibit CE-1 at page 2 of 9, LG&E presents a total present value avoided cost for the Residential Conservation Program of $1,350,862, of which $1,215,492 or 90 percent relates to avoided gas capacity and commodity costs.

a. Which specific activities within this program will result in the amount of reduced gas capacity and commodity costs as projected?

b. Is the avoided capacity referenced in this exhibit capacity on interstate pipelines?

35. Refer to Appendix 1 of Attachment 1 of the Joint Application.

a. On page 1, the introduction characterizes the Residential Conservation and Energy Education Program as "a form of demand side management [to] reduce the need for generating capacity . . . ." Explain how a program which hopes to reduce the need for additional generating capacity will result in avoided gas capacity and commodity costs of the magnitude proposed.

b. On page 3, the Program Components section indicates that Project Warm will perform an energy audit on houses of prospective candidates, the results of which will be used to select program participants. If the actual participants are presently unknown, particularly with regard to their type of primary energy use (how much gas v. electric), how can an estimate of savings in gas capacity and commodity costs be determined?

36. What rate of increase in total gas sales (Mcfs) does LG&E anticipate for the next forecasted year? For five years after that? Provide this information assuming that DSM programs are in place and then assuming no DSM programs. How much additional gas (Mcfs) will be required under each condition (1 year hence, with and without DSM; and 5 years hence, with and without DSM)?

37. In the absence of DSM programs, is the current pipeline capacity of LG&E's facilities (feeder lines) sufficient to accommodate the amount of gas needed for the estimated increase at the 1-year and 5-year intervals?

38. For each of LG&E's pipelines (feeder lines) which connect its distribution system to the interstate pipeline system provide:

a. The current maximum operating pressure and the maximum allowable operating pressure (MAOP).

b. The peak winter and normal winter day load.

c. The capacity (MCFs) available at the MAOP.

39. Provide a copy of any study or analysis which LG&E has performed or authorized which attempts to determine when LG&E will need additional feeder lines and/or connections to the interstate pipeline system to satisfy additional gas capacity needs due to increased sales.

40. Do LG&E's gas storage fields represent a potential tool in responding to additional capacity needs as a result of increased sales of gas? Do any of these storage fields represent an alternative to DSM programs?

41. Would some of the net resources saved by LG&E ordinarily be acquired with capital arising from debt or internally generated funds, as well as equity?

42. According to Tariff Sheet No. 23-D, the lost revenues are collected for 36 months or until new rates are set in a general rate case. Shouldn't the words "whichever comes first" be added?

43. Refer to page 18, lines 18 through 22, of Mr. Kinloch's testimony. Does this discussion also mean that these are the most cost-effective DSM programs? Explain fully how Mr. Kinloch determined that LG&E would get more "bang for the buck" from these programs.

44. What subsequent DSM programs, if any, does LG&E foresee undertaking after the three year pilot program?

45. Refer to page 9 of Mr. Blake's testimony. Explain fully how lost revenues of $22,283 was calculated. Provide all workpapers.

Done at Frankfort, Kentucky, this 22nd day of September, 1993.

PUBLIC SERVICE COMMISSION

For the Commission

ATTEST:

Executive Director